REMARKS

By the above amendment, the specification has been amended to update the patented status of the parent application of this continuing application, claims 7 - 12 have been canceled without prejudice or disclaimer of the subject matter thereof, and independent claims 1 and 13 have been amended to clarify and recite further features of the present invention with minor informalities in the claims being corrected.

Turning to the amendments of independent claims 1 and 13, such claims have been amended to clarify the manner of determination of the type of output signal. More particularly, such claims recite operation means for determining a type of output signal, based on an intensity of said transmitted light and pre-stored reference data <u>by determining whether the intensity belongs to a distribution of the pre-stored reference data utilizing standard deviations and mean values of characteristic parameters of the intensity for an arbitrary time interval</u>, and for outputting a signal indicative thereof as the type of output signal. That is, as described at page 76, line 5 to page 77, line 7, characteristic parameters of intensity at arbitrary time intervals are obtained. More particularly, as described at page 76, lines 19 - 21, a probability distribution of the characteristic parameters is predicated on the Gaussian distribution, which Gaussian function can be described by standard deviations and mean values, and as described at page 77, lines 2 and 3, standard deviation and mean values are calculated every characteristic parameters j at every measurement regions i to be measured. Thus, the manner in determining the type of output signal, as recited in claims 1 and 13, as amended, is clearly supported in the specification.

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Applicants note that each of claims 1 and 13 have also been amended to refer to "a" square lattice form, noting that the claims recite the features that "the incident positions of said light incident means and the detection positions of said light detecting means are alternately disposed in a square lattice form, and middle points between the incident position and the detection positions adjacent to one another are defined as measurement positions" (emphasis added). Fig. 6 of the drawings of this application illustrate the alternate disposition of the incident position (IP) of the light incident means in the form of a ○ and the detection position (DP) of the light

detecting means in the form of a ●, in a square lattice form, as illustrated, wherein the measurement positions (MP) as shown by □, being provided at middle points

between the incident positions (IP) and the detection positions (DP), which are within the square lattice form. In this manner, a significant effect that external equipment can be controlled by using the brain function without using a keyboard, mouse, handle or the like, can be obtained at described at page 84, lines 9 - 13, for example. Because localized brain function which is distributed spatially over the brain can be measured by the square lattice arrangement of the light incident means and the light detection means, the measurement result can be discriminated by which part of the brain is activated, and the output signal can be discriminated in accordance with the type of the brain activation. Additionally, because a probability distribution of the characteristic parameter of the signal is predicated on the Gaussian distribution, by use of standard deviations and mean values, it can be determined whether the intensity belongs to the distribution of the pre-stored reference data as described at page 76, lines 9 - 21, for example. Applicants submit that the aforementioned features, which are described in the original application papers, and are now set

forth in the independent and dependent claims of this application, are features which are not disclosed or taught in the cited art, as will become clear from the following discussion.

The rejection of claims 7 - 10 and 12 under 35 USC 102(e) as being anticipated by Chance et al (US Patent No. 5,954,053) is considered to be obviated by the cancellation of claims 7 - 12, such that a discussion of the cited art in relation to such claims is considered unnecessary.

As to the rejection of claims 1- 4, 6 and 13 - 16 under 35 USC 103(a) as being unpatentable over Chance et al in view of Gevins et al (US Patent 4,736,751); the rejection of claims 5 and 17 under 35 USC 103(a) as being unpatentable over Chance et al in view of Gevins et al, further in view of Block (US Patent No. 5,321,265); the rejection of claim 11 under 35 USC 103(a) as being unpatentable over Chance et al in view of Block; and the rejection of claim 18 under 35 USC 103(a) as being unpatentable over Chance et al in view of Gevins et al further in view of Saadatmanesh et al (US Patent No. 5,396,571); such rejections are traversed insofar as they are applicable to the present claims, noting that the rejection with respect to claim 11 is considered to be obviated in light of the cancellation of claim 11.

As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be

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"obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

> The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

In applying Chance et al to the claims, the Examiner contends that Chance et al teaches all of the features of the present invention, including that the "incident positions and detection positions are alternately disposed and middle points between incident and detection positions are measurement positions (column 25, lines 45 - 67 and column 26, lines 1 - 3 and 27 - 40), except for expressly disclosing that they are

arranged in square lattice form." (emphasis added). Applicants submit that in addition to the recognition by the Examiner that Chance et al does not expressly disclose incident and detection positions being alternately disposed in square lattice form, the fact remains that Chance et al provides no disclosure or teaching of such structural arrangement. More particularly, the portion of Chance et al referred to by the Examiner refers to Fig. 24 thereof, wherein two sensor modules 271 and 272 are placed on the head of a subject and comprise at least one source and detector as shown in figures 5 - 8(c), 22 and 23. It is noted that Fig. 22 shows the individual arrangement of a lamp 200 and a detector 208, while Fig. 23 shows an individual arrangement of a lamp 228 and a detector 230. On the other hand, Fig. 6A illustrates two detectors 102 arranged between two lamps 100. Applicants submit that it is readily apparent that Chance et al provides no disclosure or teaching of incident positions and detection positions being alternately disposed in a square lattice form, as recited in independent claims 1 and 13, nor that measurement positions are middle points between the incident and detection positions, irrespective of the Examiner's contentions. Applicants further note that the two sensors as shown in figure 24 serve for enabling correction of noise signals as described in column 26, lines 52 - 54 in addition to detecting radiation that migrates along banana-shaped paths in the two brain hemispheres. Thus, irrespective of the Examiner's position, Chance et al does not disclose the recited structural arrangement in the sense of 35 USC 103. Additionally, applicants note that Chance et al provides no disclosure or teaching of determining the type of output signal based on an intensity transmitted light and pre-stored reference data by determining whether the intensity belongs to a distribution of the pre-stored reference data utilizing standard deviations and mean values of characteristic parameters of the

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intensity for an arbitrary time interval. Thus, applicants submit that Chance et al cannot discriminate an output signal, in accordance with the spatial distribution of brain activity, by determining whether the intensity belongs to the distribution of reference data. Accordingly, applicants submit that independent claims 1 and 13, as amended, patentably distinguish over Chance et al in the sense of 35 USC 103 and such claims and the dependent claims should be considered allowable thereover.

The Examiner in at least recognizing the deficiency of Chance et al with respect to the arrangement in a square lattice form, cites Gevins et al as teaching a head scanning network in a square lattice arrangement referring to column 5, lines 62 - 68, column 6, lines 1-2 and Figs. 6 and 10. The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time of the invention to have arranged the incident and detection positions in a square lattice in order to provide known, regular locations for simplified calculations. Irrespective of this position by the Examiner, applicants note that as shown in Fig. 1 and EEG helmet is placed on the head of the subject, and has 32 to 256 spring-loaded/barrel tin disk electrodes 21 which make electrical contact with the scalp, and as shown in figure 4 of this patent, the electrodes or sensors provide outputs in response to external visual or auditory stimulus, as described in the specification of such patent. Thus, while the Examiner refers to Figs. 6 and 10 of this patent, such figures only illustrate the location of the electrodes or sensors, with visual stimulus being externally provided in the manner illustrated in Fig. 4, for example. Thus, applicants submit that Gevins et al, contrary to the Examiner's position does not disclose or teach incident positions of light incident means and detection positions of light detection means being alternately disposed in a square lattice form, as recited in independent claims 1 and 13 and the dependent claims of this application. That is, assuming the

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visual stimulus of Gevins et al represents light, such visual stimulus is detected by the eyes of the subject, whereas the auditory stimulus is detected generally by the ears of the subject, and the sensors detect brain wave activity at the location thereof in response thereto. Moreover, applicants submit that it is apparent that the portion of Gevins et al referred to by the Examiner, i.e., column 5, lines 62 - 68 and column 6, lines 1 - 2 provide no disclosure or teaching of the claimed subject matter. Applicants further note that Gevins et al provides no disclosure or teaching regarding the determination of a type of output signal as now recited in independent claims 1 and 13, which features are also not disclosed or taught by Chance et al. Thus, the proposed combination of Chance et al and Gevins et al fail to provide the claimed features as set forth in claims 1 and 13 and the dependent claims thereof, and applicants submit that all claims patentably distinguish over this proposed combination of references in the sense of 35 USC 103.

As to the addition of Block and Saadatmanesh et al to the aforementioned combination of Chance et al and Gevins et al, applicants submit that irrespective of the disclosure of these additional references, Block and Saadatmanesh et al fail to overcome the deficiencies of Chance et al and Gevins et al as pointed out above. Thus, it is apparent that the proposed combination also fails to disclose or teach the recited features of independent claims 1 and 13 and the dependent claims thereof. Thus, applicants submit that all patentably distinguish over this proposed combination of references and all claims patentably distinguish over each of the references taken alone or in any combination thereof, such that all claims should be considered allowable thereover.

With respect to the dependent claims, applicants submit that the dependent claims recite further features, which when considered in conjunction with the parent
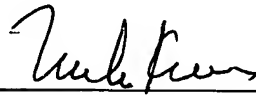
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claims, further patentably distinguish over the cited art and should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application patentably distinguish over the cited art and should now be in condition for allowance. Accordingly, issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 520.35492CC2), and please credit any excess fees to such deposit account.

Respectfully submitted,

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